Commonwealth of Massachusetts
Executive Office of Environmental Affairs
Department of Environmental Protection

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RESPONSE TO COMMENTS RECEIVED FOLLOWING THE TITLE 5 PUBLIC INFORMATION MEETINGS
15 June 1993

Title 5, the State Environmental Code for Subsurface Disposal of Sanitary Waste (310 CMR 15.00), was last revised in 1978. Since then, scientific studies have significantly changed our understanding of the environmental impacts of septic systems on ground water and surface water. In Massachusetts, where nearly one-third of all sanitary waste is disposed of on-site, and nearly half of all systems are sub-standard, on-site wastewater disposal ranks among the top four sources of river pollution and has contributed to shellfish bed closures, and pollution of water supplies and lakes and ponds. The mounting evidence regarding environmental impacts associated with septic systems prompted the Department of Environmental Protection (DEP) to undertake a comprehensive review of Title 5. The study, completed late in 1991, was used to develop a draft position statement of the major issues raised in the study.

Knowing the broad level of interest in Title 5, DEP decided to hold several public information meetings reaching hundreds of people throughout the Commonwealth, rather than go immediately to draft regulations. The purpose of the informal meetings was to solicit discussion and comments from all interested parties on options for revising the Code before DEP had reached any conclusions on its own. While these forums provided thoughtful discussion and comments on a variety of technical and policy issues, the lack of definitive answers on all of the issues has led to imagined worst-case scenarios and *false* rumors such as: all new homes and existing/approved lots will need at least an acre of land; all existing septic systems will need to be immediately upgraded; and the new Code will give Board of Health officials the right to enter private property without prior notice.

This is a response to the most frequently questioned aspects of DEP's statement of policy issues on Title 5. DEP is currently in the process of drafting regulations and expects to hold public hearings this summer in anticipation of promulgation in October. We will notify all Boards of Health, Boards of Selectmen, and Planning Boards, and all parties who submitted written comments and will publish notice of the hearings in major newspapers and the Environmental Monitor.

1. Status of Existing Building Lots and Septic Systems (Grandfathering) - Many commenters were concerned over the status of existing building lots and structures at various stages of local approval.

Response - An important goal of the proposed revisions to Title 5 is to ensure that new construction in the Commonwealth is served by septic systems designed in accordance with best engineering and siting practices, capable of minimizing the discharge of pollutants to the environment. The Department recognizes, however, the potential hardship to property owners of imposing new standards on property which has previously received local approvals (including those claiming the protection of M.G.L. c. 41 or c. 111 s. 127P) but is incapable of being developed in accordance with the standards of the revised Code. The Department proposes to balance these concerns as follows.

Projects that have received approval under the 1978 Code will be allowed to proceed in accordance with the 1978 Code (which provides that permits are valid for two years). Projects grandfathered under c. 111 s. 127P because subdivision plans are pending, or have been approved within the last three years, will be allowed to proceed under the 1978 Code in accordance with c. 111 s. 127P. On lots in critical environmental areas on which new setbacks, nutrient loading or density restrictions apply, but which would have been buildable under the 1978 Code, the revised Code will allow the construction of at least a two bedroom home. Larger homes on such lots may be permitted if they are equipped with a technology that provides a higher level of treatment, to ensure protection of critical water resources.

DEP currently intends to consider existing Title 5 systems that are in full compliance with the existing code (including those properly granted variances) to be in compliance with the revised code ***provided*** the system does not fail as defined by the code. All other systems, for example cesspools, are currently considered "substandard" and are not grandfathered. Per previous DEP policy, these systems should be upgraded in accordance with priorities established by the local Board of Health. The code will set out clear guidance as to under what circumstances system upgrades will required and the criteria Boards of Health should use in determining upgrade priorities.

2. Nutrient Loading Rate - Nitrogen is used as an indicator of pollution from on-site systems, and DEP suggested several options for controlling pollution based on nitrogen loading studies, ranging from a statewide standard to a few selected critical areas where new development would need an acre or more of land to support a four-bedroom home. The controversy over the proposal to restrict development density to reduce nitrogen loading focused on attendant land use impacts.

Response - The impact of septic system density on ground water resources is well documented, including studies conducted by the US Environmental Protection Agency and the US Geological Survey. It is clear that allowing the use of septic systems in densely populated areas with no consideration for their cumulative impacts can result in significant pollution of ground water and surface water.

DEP will not propose a statewide nutrient loading standard but will limit nutrient loading to 440 gal/day/acre to protect sensitive environmental areas. DEP will propose that the following areas be designated as environmentally sensitive: public drinking water supplies, designated Areas of Critical Environmental Concern, nitrogen-sensitive coastal embayments, and new development served by septic systems and private wells on the same lot. Because many towns have residential zoning of 40,000 ft^2, for the purposes of Title 5 an acre will be equal to 40,000 ft^2. Communities may petition DEP for a resource-area wide variance from this rate in situations where a water resource protection plan and land use controls can demonstrate that at least the equivalent level of protection as the 440 gal/day/acre rate is provided with respect to total pollution loading. The Secretary of Environmental Affairs is committed to assisting communities in finding money to develop local plans. In the case of subdivisions, the nutrient loading rate will be applied on a per-lot basis unless all lots on the entire subdivision plan, on average, do not exceed the nutrient loading rate. Communities or regions can establish stricter standards based upon site-specific studies.

3. Setback to Wetlands and Water Supplies - Many commenters made the point that DEP's proposal to make Title 5 consistent with the Wetlands Protection Act (WPA) by prohibiting septic systems within the 100' buffer zone was flawed in that the WPA does not prohibit activities within the buffer

zone; it merely requires a site-specific review pursuant to the Act. Other commenters cited the need for more protective setbacks to surface water supplies and other surface waters.

Response - DEP will propose retaining the existing 50-feet wetlands setback from septic systems. To eliminate the confusion over the boundary line to be used to measure the setback, DEP will revise Title 5 to be consistent with the wetlands regulations (measuring from the wetland boundary as determined by the Wetlands Act and regulations and *not* the current "mean annual flood elevation"). DEP will not allow variances from wetlands setbacks for new lots. Other proposed setbacks will also be consistent with relevant laws and regulations, with the provision that should an existing buildable lot become unbuildable as a result of the new setbacks, a minimum of a two-bedroom dwelling would be allowed, and greater design flows may be permitted with a higher level of treatment:

- no new or expanded septic systems within the Zone I of public ground water supplies (400 feet from gravel packed wells, 250 feet from tubular wells), consistent with current water supply regulations;
- no new or expanded septic systems within 400 feet from the bank of public surface water supply reservoirs, nor 200 feet from the bank of tributaries to these reservoirs or 50 feet from the boundary of the wetland bordering said tributaries, whichever is greater, based on the rationale of Ch. 36, Acts of 1992 (the "Cohen Bill");
- no new or expanded septic systems within 150 feet of rivers and streams, consistent with pending river protection legislation.

4. Innovative/Alternative Technologies - There was strong support for new technologies. While most expressed their desire for their use in both new construction and remediation some expressed concern about the land-use implications of allowing innovative technologies for new development.

Response - DEP will propose to approve the general use of recirculating sand filters in the revised regulations, and expects to approve other new technologies within the next few years. These new technologies may have an impact on growth and development. Communities concerned about these impacts will need to do the necessary planning to prepare for these technologies. As noted above, the Secretary of Environmental Affairs is committed to assisting communities in finding money to develop local plans. DEP is developing clear procedures for expediting the use of new technologies. An evaluation and planning period is proposed for each of the newly approved technologies to allow for appropriate field testing and experience in actual operation, after which time the use of alternative technologies will be approved for broader use with appropriate environmental, institutional, and operational controls to ensure protection of public health and the environment. During this interim period, new technologies may be used for remediation, upgrade, and repair of existing systems and, for new construction, on lots otherwise buildable under the applicable Title 5 standards to ensure that if the system fails a backup solution could be installed. Recirculating sand filters, and other technologies as they are approved for broader use, will be available for cluster situations (see question 7 below).

5. Percolation Rate - Comment was equally divided on this issue. No specific scientific data was presented to support either position, retaining the 30 min/inch maximum rate or increasing the rate to 60 min/inch. However, the opinions expressed were very strong. Land use impacts were the major concern of those expressing opposition to changing the allowable percolation rate to 60 min./inch. Those expressing support felt that the establishment of a maximum percolation rate

should be based solely on the ability of the on-site system to function properly. DEP is already instituting a soils training and certification program.

Response - Pollutant renovation can be increased by properly siting and designing on-site systems in soils typified by higher organic content and slower percolation rates. However, as soils become more restrictive to the flow of water, the importance of properly identifying the parent soils types and designing the system based on this information increases. A suitable site for sewage treatment and disposal must contain soils capable of accepting the expected hydraulic loads while providing adequate treatment. This site characterization can be a complex process, typically involving a systematic field investigation to assess landscape position and general soil taxonomy. The existing requirements for site evaluation and the witnessing of percolation testing are inadequate to ensure the proper siting and design of on-site systems in less permeable soils.

DEP concurs with the recommendation of its consultant, DeFeo Wait & Associates, that more emphasis on the properties of the parent soils, the long-term acceptance rate and hydrologic criteria in relation to sewage treatment would be a more technically sound overall approach than sole reliance on percolation rate. Consequently, DEP will not change the existing percolation rate but will propose a series of measures to address this issue sequentially over time:

- first, the proposed regulations will contain effluent loading rate design criteria for leaching systems based on soil types and long-term acceptance rate;
- second, DEP will continue to offer a training course and a site evaluator certification program to increase the expertise of persons evaluating sites for on-site systems. The course will be offered several times annually at different locations statewide. One year after the effective date of the regulations, DEP will require that evaluations be performed by a certified person (either a Board of Health member or agent, or a contractor). DEP encourages Boards of Health to consider regional approaches to developing and applying expertise in this area;
- third, DEP expects to replace or augment the percolation rate with a soils-based system in the future.

In addition, the proposed regulations will provide that variances may be granted for remediation or repair of existing substandard systems in areas where the percolation rate of the soils does not exceed 60 minutes per inch.

6. Inspection & Maintenance (I&M) - Most commenters expressed their recognition of the importance of proper maintenance of on-site systems. However, the expense to the homeowner and the resources necessary to implement an I&M program at the local level were two issues identified by most commenters as the greatest concern.

Response - When an on-site sewage treatment and disposal system does not function properly it places public health and the environment at risk. Therefore, routine inspection and maintenance is essential to the successful long-term performance of the system. The revised code will make it clearer that the principal responsibility to ensure proper operation and maintenance rests with the system owner. However, the use of individual systems varies significantly, and each community is unique in both the percentage of homes served by on-site systems and the available resources to implement an effective I&M program. Recognizing these factors, DEP believes that allowing the local regulatory entity to formulate a plan which reflects these variables and best suits their specific

situation will provide the most effective approach to this problem. Where there is no community-wide plan, each homeowner will be responsible for having their system inspected once every three years, but this schedule could be modified under an approved local or regional plan. Under any approach, inspections could be performed by, for example, Registered Engineers or Sanitarians. Some Boards of Health have suggested that inspection at the time of a home sale to ensure that substandard systems are identified and upgraded is one mechanism that should be considered; DEP will solicit comment on this issue. The proposed regulations will identify criteria to be addressed in developing an acceptable I&M plan. DEP will be as flexible and reasonable as possible in its review of plans with the main objective of proceeding towards having every system inspected and maintained (including repairs as appropriate) on a regular schedule and to have communities look comprehensively at all of their sewage and septage collection, treatment and disposal needs.

DEP recognizes there is an associated expense with I&M and is working on designing a system which assists communities to take incremental steps towards a comprehensive, affordable, and manageable I&M program. The small I&M cost will vary with the frequency of inspection and from community to community (much like sewer use fees). Over the life of an individual system, a small fee for proper inspection and maintenance can avoid very costly system replacement.

7. Cluster Development - Many commenters asked how Title 5 can encourage cluster development.

Response - DEP is supportive of "cluster" development to reduce the overall impact of a project on natural resources. Restrictions caused by the one on-site septic system per lot rules in Title 5 have tended to impede clustering development. The proposed revisions will allow developments, particularly small residential projects, to connect homes into a community septic system and will establish a standard set of institutional controls to address long term system operation and maintenance, replacement and repair. This would be allowed only in compliance with local zoning, only for flows of less than 10,000 gpd, and when proper operation and maintenance requirements are incorporated into each home-owner's deed. To encourage clustering, DEP will propose to allow 25% increased density of development within a project when at least a 25% increase in contiguous open space within the project area is provided. The open space requirement is important to water quality because nutrient loading rate limitations reflect pollutant flow from sources such as road runoff and lawn fertilizers as well as from septic systems.

8. Depth to Ground Water in Well Drained Soils (i.e., <5 min/inch) - Most commenters supported the proposal to increase the depth to ground water to 5 feet in well drained soils. Some did question, however, the need for the increase if all of the treatment was provided in the biological mat.

Response - Although it is true that most of the pollutant renovation in soil absorption systems occurs in the biological mat, the soils immediately below the leaching area are important in removing pathogens as well as some inorganic constituents, such as metals, through chemical and physical processes. It is very important that system siting and design ensure that there is sufficient opportunity for these processes to occur before the effluent reaches the ground water; therefore, DEP will propose a five foot separation in well-drained soils. While there may be other options available to theoretically provide the same level of protection, such as soil amendments, they pose the problem of regulating the quality of the fill material. The proposed regulations will include better methods of determining groundwater levels, including use of USGS and town well data.

9. Minimum System Design Assumptions (4-Bedroom House) - Some commenters expressed the view that DEP should not require septic systems to be sized based on a 4-bedroom house if fewer bedrooms were actually proposed. Higher costs and greater land requirements were cited as concerns.

Response - DEP proposed the sizing standard because it has commonly experienced expansions of homes without the necessary expansion of the system, resulting in system failures. However, DEP will propose that systems be designed based on the actual number of bedrooms initially built, recognizing that Boards of Health will need to exert more control to ensure systems are expanded when necessary.

10. What About the Use of Privately Owned Sewage Treatment Facilities?

Response - Generally, Privately Owned Sewage Treatment Facilities (PSTFs) are used to treat larger volumes of wastewater, currently in excess of 15,000 gallons per day (the maximum volume permissible under Title 5). This threshold will be lowered to 10,000 gallons per day in the revised regulations. There are currently about 150 PSTFs operating in Massachusetts, serving primarily businesses and residential condominiums, and DEP continues to review and approve such facilities under its separate Groundwater Discharge Permit Program (314 CMR 5.00).

A Generic Environmental Impact Report (GEIR) has been completed to evaluate the use of PSTFs in subdivisions of single family homes. One finding of the GEIR was that legislation would be required to provide homeowner's associations increased authority over individual property owners, particularly with respect to assessment and collection of user charges, before these associations could be found to provide the same level of confidence about long term operation and maintenance that is available through condominium associations. Should such legislation be enacted, DEP will move promptly to promulgate regulations to implement that change.

DEP is grateful to everyone who attended the public information meetings and particularly to those who took the time to submit written comments. The data, opinions, positions and perspectives presented have been very useful in developing a draft code to present at public hearing. We value your continued input during the public hearing process.